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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/536,843

05/31/2005

Juergen Weese

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03/31/2010

PHILIPS INTELLECTUAL PROPERTY & STANDARDS

P.O. BOX 3001

BRIARCLIFF MANOR, NY 10510

EXAMINER

CATTUNGAL, SANJAY

ART UNIT

PAPER NUMBER

3768

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DELIVERY MODE

03/31/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/536,843	<b>Applicant(s)</b> WEESE, JUERGEN	
	<b>Examiner</b> SANJAY CATTUNGAL	<b>Art Unit</b> 3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03/08/2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/08/10 has been entered.

### ***Response to Arguments***

2. Applicant's arguments filed 03/08/10 have been fully considered but they are not persuasive. Applicant argues that the Strommer reference does not sort images based on one or more characteristic attribute of the vessel. Examiner would like to point out that the Specification page 3 line 1 includes the word "etc" for the characteristic attributes of vessel, as such timing data is also considered characteristic attribute of the vessel. As the word "etc" is open ended, hence the characteristic attributes are not limited to the ones listed on page 2 line 31.

3. Regarding Strommer reference Applicant argues that Strommer does not teach a data processing unit to sort the images into a sequence. Examiner would like to point out that Strommer references Paragraph 110 and 0112 teaches a data processor for sorting images into a sequence.

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4. Applicant argues Strommer does not teach sorting a further local image, which is made by sensor probe into the sequence; and position medical device based on the sorted image.

5. Examiner would like to point that Strommer teaches that the further local image is sorted based on similarities (location and orientation are considered similarities in the images) of the one or two adjacent images in the sequence (Paragraph 0112 and 0144). Here the 3d image is considered sequence of 2d image and updating the 3d image required further sorting a local image into the sequence of images (3d image), based on location and orientation (similarities). Furthermore Strommer teaches positioning a medical device (Stent) coupled to the catheter based on the sequence of images (Paragraph 0082).

6. Applicant argues that Strommer does not teach sorting being based on at least one similarity of at least one characteristic attribute of the vessel **as shown within** the further local image and one or more of the local images of the sequence.

7. Examiner would like to point out that Fig. 9 teaches a sequence of images which are linked to the timing signals, wherein the timing signals are within the image.

### ***Claim Objections***

8. The amendment dated 03/08/10 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: Claims 1, 5, and 13 recite "sorting being based on at least one similarity of at least one characteristic attribute of

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the vessel **as shown within** the further local image and one or more of the local images of the sequence” which has not been specified anywhere in the written disclosure (specification) and hence is not supported by the specification and considered new matter.

9. Applicant is required to cancel the new matter in the reply to this Office Action.

***Claim Rejections - 35 USC § 112***

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claims 1-5 and 13-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The phrase “sorting being based on at least one similarity of at least one characteristic attribute of the vessel **as shown within** the further local image and one or more of the local images of the sequence” has not been described anywhere in the specifications and is considered new matter.

12. Applications specifications page 2 line 31 through Page 3 line 7 state that the sorting is based on characteristic attributes of vessel, which includes characteristic attributes not in the image as well, such as timing signals, from ECG waves as such, the elements recited in the claims are considered new matter.

***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. Claims 1-10, 13-16, 18, and 20, are rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Publication No. 2007/0107688 US Application no. 10/938,395 to Strommer et al.

15. Regarding Claims 1, Strommer teaches an apparatus for assisting navigation in a vessel comprising: a sensor probe for acquiring local images that characterize the vessel at the point where the particular local image is made, which sensor probe can be moved along the vessel (0076); a memory for storing a sequence of local images that is obtained in the course of the movement of the sensor probe along the vessel (Figs. 7b and 9); a data-processing unit that is arranged to sort a further local image of the vessel into the sequence that is stored in the memory based on at least one similarity of at least one characteristic attribute of the vessel (timing signal) as shown within the further local image and one or more local images.(Figs. 7b and 9; Paragraph 0076, 0077, 0082 and 0141)

16. Regarding Claims 2 and 18, Strommer teaches that the probe is an intravascular ultrasound system, and moved along the vessel in a defined speed (paragraph 0076).

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17. Regarding Claims 3, 7, and 20, Strommer teaches moving the sensor probe along the vessel using pulling motion, as such the speed of motion and rate of generation of images will be in a rate acceptable by the system, as such the speed of motion of the probe and rate of generation of images is considered to be of the desired rate/speed (paragraph 0076).

18. Regarding Claim 4, Strommer teaches that the positional data of the probe is displayed (paragraph 0082 and 0107).

19. Regarding Claim 5 and 13, 15, Strommer teaches positioning a medical device (Stent) coupled to the catheter based on the sequence of images (Paragraph 0082).

20. Regarding Claim 6, Strommer teaches that the lumen is a vessel (Paragraph 059).

21. Regarding Claims 8 and 9, Strommer teaches that the further local image is sorted based on similarites (location and orientation are considered similarities in the images) of the one or two adjacent images in the sequence (Paragraph 0112 and 0144). Here the 3d image is considered sequence of 2d image and updating the 3d image required further sorting a local image into the sequence of images (3d image), based on location and orientation (similarities).

22. Regarding Claim 10, Strommer teaches that the images are related to position data (Figs. 2 and 3).

23. Regarding Claim 14, Strommer teaches moving the sensor probe along the vessel using pulling motion (paragraph 0076).

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24. Regarding claim 16, Strommer teaches performing geometrical corrections to local images based on pre-existing images (paragraph 0174).

***Claim Rejections - 35 USC § 103***

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

26. Claims 11, 12, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Publication No. 2007/0107688 US Application no. 10/938,395 to Strommer et al. in view of U. S. Publication No. 2003/0199767, U. S. Application No. 10/232,428 to Cespedes et al.

27. Regarding Claims 11, 12, and 19, Strommer teaches all of the above claimed limitations but does not expressly teach that the sensor probe can acquires images using Optical coherence tomography.

28. Cespedes teach that the sensor probe can acquires images using Optical coherence tomography (Paragraph 0041).

29. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Strommer with a sensor probe that can acquires images using Optical coherence tomography as taught by Cespedes, since IVUS and OCT are common catheter based imaging modalities and using OCT would also be beneficial in determining plaques, hence would be beneficial in correct stent positioning.



30. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Publication No. 2007/0107688 US Application no. 10/938,395 to Strommer et al. in view of NPL titled "Towards Real-Time Multi Modality 3-D Medical Image Registration" to Weese et al.

31. Regarding Claim 17, Strommer teaches all of the above claimed limitations but does not expressly teach similarity between the further local image and the one or more of the local images of the sequence based on gray-value registration.

32. Weese teaches the use of gray-value based image registration (Page 1).

33. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Strommer, with a gray value based registration setup as taught by Weese, since such a setup would result in precise registration of images, as the adjacent images will be closely related in gray values.

### ***Conclusion***

34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANJAY CATTUNGAL whose telephone number is (571)272-1306. The examiner can normally be reached on Monday-Friday 9-5.

35. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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36. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SANJAY CATTUNGAL/  
Examiner, Art Unit 3768